



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,691	02/27/2004	Zane C. Eaton	550270.91197	9335

26710 7590 07/12/2006

QUARLES & BRADY LLP
411 E. WISCONSIN AVENUE
SUITE 2040
MILWAUKEE, WI 53202-4497

EXAMINER

AMAYA, CARLOS DAVID

ART UNIT	PAPER NUMBER
----------	--------------

2836

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/789,691	Applicant(s) EATON ET AL.	
	Examiner Carlos Amaya	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 20-23 is/are allowed.
- 6) ☐ Claim(s) 1-9, 12, 13 and 16-19 is/are rejected.
- 7) ☐ Claim(s) 10, 11, 14 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/26/2204</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because Figures 1 and 2 are hand drawn; examiner requests figures that are very clear and computer generated.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 7-9, 12, 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young (US 7,061,139).

With respect to claim 1 Young discloses an automatic transfer switch (Static Switch Module 17) system comprising: at least one input port capable of being coupled to at least one power source to receive an input power (As shown in figure 3 the Site Management System 11 is capable of receiving power from utility grid 10 or Fuel cell power plant 18, thus it would necessarily have ports to connect to the sources); a first internal component (Site supervisory control 29 and operator console 32)

However, Young does not disclose expressly that the internal component requires internal power satisfying a first criterion in order to properly operate; and power converter (Power converter 64, Column 10 line 10) coupled to the first internal component (Young does not disclose that the converter is couple to the internal components) and to the at least one input port, wherein the power converter is capable

of receiving the input power by way of the at least one input port and converting the input power into the internal power to be provided to the first internal component, and wherein the internal power provided by the power converter satisfies the first criterion, even though at least one characteristic of the input power varies within range.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have supplied the SSC 29 with power generated by power converter 64, thus regulating the voltage coming from either the utility grid 10 or the fuel cells 18 to be a voltage that meets the criterion of the internal components.

The suggestion or motivation for doing so would have been to assured redundancy is met by powering the SSC 29 to control the transfer of power from either of the power grid or fuel cells (Column 9 lines 57-61).

With respect to claim 2 Young discloses the ATS system of claim 1, the at least one input port is capable of receiving first and second input powers from first and second external power sources, and wherein the power converter is capable of combining the first and second input powers to provide the internal power (As shown in figure 3 by means of PCS 62 the system is able to supply either the power from the utility grid 10 or the fuel cell power plant 18. The power converter 64 is capable of receiving power from the fuel cell 18 and the utility grid 10).

With respect to claim 3 Young discloses the ATS system of claim 1, wherein the power converter includes a rectifier section (rectifiers 66 and 70, Figure 3) and a switch mode regulator section coupled to one another (As shown in figure 3 the rectifiers section is couple to the Power converter 64, the converter 64 must include regulator to

supply a regulated AC output; thus the converter 64 is going to be referred as a switch mode regulator).

With respect to claim 4 Young discloses the ATS system of claim 3, wherein the power converter further includes a first filter section (Filter 65) that couples the rectifier section and the switch mode regulator section (Branch 10" connects the filter with the rectifier 66 and the power converter 64).

With respect to claim 7 Young discloses the ATS system of claim 3, wherein the at least one input port includes a first input port that is capable of receiving a first input power (input port for the fuel cell power plant 18) from a first power source and a second input port (port for the utility grid 10) that is capable of receiving a second input power from a second power source (The system is capable of receiving power from either the utility grid or the fuel cell power plant 18).

With respect to claim 8 Young discloses the ATS system of claim 7, wherein each of the first and second input powers has three phases in an arrangement (Column 5 lines 22-25) that is one of a delta arrangement, a wye arrangement and a corner-grounded delta arrangement, and wherein two of the three phases of each of the first and second input powers are coupled to the rectifier as the input power.

It would have been obvious to one of ordinary skill in the art to have the connection of the three-phase disclose by Young in an arrangement that is suitable for the power conversion of the rectifier, and also to connect the rectifiers (rectifiers 66 and 70) to two of the three phases, for the purpose of obtaining a desired output based on the characteristics of the three-phase input power.

With respect claim 9 Young discloses the ATS system of claim 7, wherein the rectifier section includes a first diode array (Power rectifier 66) that receives the first input power (power from utility grid) and a second diode array (Power rectifier 70) that receives the second input power (power from fuel cell 60), wherein the first and second diode arrays respectively rectify the first and second input powers, wherein respective first output terminals of each of the first and second diode arrays are coupled to one another and respective second output terminals of each of the first and second diode arrays are coupled to one another so that an overall rectified power based upon either or both of the first and second input powers is developed (As shown in figure 3 both rectifiers 66 and 70 are couple together to provide an overall rectified power based on either of the first or second power source).

With respect to claim 12 Young discloses the ATS system of claim 4, wherein the criterion is that a voltage of the output power remain at one of substantially 12 Volts DC and substantially 5 Volts DC. It would have been obvious to include a power converter that outputs a desired DC output voltage in Young's invention. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

With respect to claim 16 Young discloses the ATS system of claim 1, wherein the at least one characteristic of the input power that varies is a voltage of the input power, which varies within one of a first range of 0 to 300 Volts AC and a second range of 300 to 600 Volts AC. The input power can vary according to the various components taking

into account during generation or transmission of power to the system. It has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

With respect to claim 17 Young discloses an automatic transfer switch (ATS) system (Static Switch Module 17) comprising: means for receiving an input power provided from at least one outside power source (As shown in figure 3 the Site Management System 11 is capable of receiving power from utility grid 10 or Fuel cell power plant 18,)

Young, however, does not disclose expressly that an internal component (Site supervisory control 29 and operator console 32) within the ATS system that requires, for its operation, internal power satisfying a criterion. And means for converting the input power into the internal power satisfying the criterion even though at least one characteristic of the input power varies within a range, wherein the means for converting is coupled to the means for receiving and to the internal component.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have supplied the SSC 29 with power generated by power converter 64, thus regulating the voltage coming from either the utility grid 10 or the fuel cells 18 to be a voltage that meets the criterion of the internal components.

The suggestion or motivation for doing so would have been to assured redundancy is met by powering the SSC 29 to control the transfer of power from either of the power grid or fuel cells (Column 9 lines 57-61).

With respect to claim 18 Young discloses the ATS system of claim 17, wherein the means for receiving an input power is capable of receiving power provided from at least two outside power sources, and the means for converting the input power into the internal power is capable of developing the internal power as a combination of the power received from more than one outside power source. (As shown in figure 3 by means of PCS 62 the system is able to supply either the power from the utility grid 10 or the fuel cell power plant 18. The power converter 64 is capable of receiving power from the fuel cell 18 and the utility grid 10, to convert the input power to meet certain characteristics).

With respect to claim 19 Young discloses the ATS system of claim 18, wherein at least one of the means for receiving and the means for converting includes a plurality of high voltage tolerant diodes capable of handling voltages provided from the two outside power sources, where the two outside power sources can have any of a variety of three-phase configurations (Young discloses that the input power from the utility grid 10 and the fuel cell power plant 18 is three-phase power, thus one would have envision to make rectifiers 66 and 70 to tolerate high voltages coming from the power sources; by providing the rectifiers with high voltage tolerant diodes).

4. Claims 5-6, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young (US 7,061,139) in view of Hansson (US 2004/0189271).

With respect to claim 5 Young discloses the ATS system of claim 3, however, does not disclose expressly that the power converter further includes a second filter section that is coupled to the switch mode regulator section.

Hansson discloses a switch mode power supply 100, Figure 1 comprising input filter 105 and output filter 130 (second filter) couple to a rectifier 115 and voltage regulator 120 and converter 125.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided Young invention with a second filter as disclosed by Hansson for providing a filtered output voltage.

The suggestion or motivation for doing so would have been to provide a clean output signal free of unwanted signals.

With respect to claim 6 Young discloses the ATS system of claim 5, wherein the input power is provided to the rectifier section, however, Young does not disclose expressly that the internal power is provided from the second filter section, and each of the first and second filter sections operates as a low- pass filter.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide power to the internal components, SSC 29 disclosed by Young, from the second filter disclose by Hansson. Also making the filters a low-pass filter is based on design and results desired.

The suggestion or motivation for doing so would have been to provide a clean output signal free of unwanted signals that are filtered out by the filter.

With respect to claim 13 Young discloses the ATS system of claim 1, however Young does not disclose expressly that the power converter includes a switch mode power supply (SMPS) and a switch mode regulator coupled to an output terminal of the SMPS.

Hansson discloses a switch mode power supply 100 and pre-regulator 120 (shown in figure 4) of figure 1, it is known in the art to include regulators in the SMPS as disclose by Hansson. It would have been obvious to provide a SMPS to the invention disclose by Young, for the purpose of providing a desired output voltage.

The suggestion or motivation for doing so would have been to stabilize the output voltage, to provide a clean output to electrical components.

Allowable Subject Matter

5. Claims 20-22, and 23 are allowed.
6. Claim 20 is allow over the prior art of record, because the prior art of record do not suggest "converting the rectified power into a modified rectified power by way of the switching mechanism, wherein the internal power is based upon the modified rectified power, and wherein the converting includes developing a feedback signal indicative of an aspect of the modified rectified power that can vary as a result of the variation of the at least one characteristic of the input power; and adjusting the converting in response to the feedback signal so that the internal power based upon the modified rectified power satisfies the criterion". Along with the remaining parts of the claim.
7. Claims 21-22 are allowable, because they depend on an allowable claim.
8. Claim 23 is allow over the prior art of record, because the prior art of record do not suggest that "a first diode array capable of receiving and rectifying the first power and a second diode array capable of receiving and rectifying the second power, wherein output ports of the first and second diode arrays are coupled to one another so that the rectified first and second powers are combined to form a first modified power; a switch

Art Unit: 2836

mode regulator section coupled to the rectifier section, wherein the switch mode regulator provides a second modified power based upon the first modified power; and at least one filter section coupled to at least one of the switch mode regulator section and the rectifier section, wherein the low voltage output power is one of the second modified power and a filtered power provided as a result of operation of the filter section upon the second modified power". Along with the remaining parts of the claim.

9. Claims 10-11, 14-15 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 10 is allow over the prior art of record, because the prior art of record do not suggest that "regulator section includes a transistor, a switching control device, and a transformer having first, second, third and fourth transformer terminals, wherein the first transformer terminal is coupled to a first output terminal of the rectifier section, wherein the second transformer terminal is coupled to a transistor, which in turn is coupled to the switching control device, wherein the fourth transformer terminal is coupled to a first diode that in turn is coupled to a second diode by which a feedback signal is provided to the switching control device, wherein a junction between the first and second diodes is coupled to the third transformer terminal by at least one capacitor, and wherein the internal power is based upon an intermediate power provided by way of the junction and the third transformer terminal".


11. Claim 11 is allowable, because it depends on an allowable claim.
12. Claim 14 is allow over the prior art of record, because the prior art of record do not suggest a "second internal component that requires secondary internal power satisfying a second criterion in order to properly operate, wherein internal power satisfying the first criterion is provided at the output terminal of the SMPS and the secondary internal power satisfying the second criterion is provided by the switch mode regulator".
13. Claim 15 is allowable, because it depends on an allowable claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner's supervisor, Brian Sircus can be reached on (571)272-2800. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CA



7-7-06

STEPHEN W. JACKSON
PRIMARY EXAMINER